

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-17 (cancelled).

18 (new). A method of treating a patient having Type 1 diabetes mellitus (T1DM) or at risk of developing T1DM, which comprises administering to the patient a peptide having the sequence QPLALEGSLQK (SEQ ID NO: 9), said peptide being optionally extended by one or more aminoacids bordering said sequence in the consensus sequence GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10).

19 (new). A method according to claim 18, in which the peptide has a sequence consisting essentially of a sequence selected from the group consisting of GGGPGAGSLQPLALEGSLQK (SEQ ID NO: 4), GSLQPLALEGSLQKRGIV (SEQ ID NO: 5), QPLALEGSLQKRGIVEQ (SEQ ID NO: 6), and GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10).

20 (new). A method according to claim 18, in which the peptide has the sequence consisting essentially of GGGPGAGSLQPLALEGSLQK (SEQ ID NO: 4).

21 (new). A method according to claim 18, in which the peptide has the sequence consisting essentially of GSLQPLALEGSLQKRGIV (SEQ ID NO: 5).

22 (new). A method according to claim 18, in which the peptide has the sequence consisting essentially of QPLALEGSLQKRGIVEQ (SEQ ID NO: 6).

23 (new). A method according to claim 18, in which the peptide has the sequence consisting essentially of GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10).

24 (new). A method according to claim 18 or 19, in which the peptide or selected peptide is used in combination with one or more peptides having a sequence or sequences selected from the group consisting of LAKEWQALCAYQAEPNTCATAQGEGNIK (SEQ ID NO: 11), KLVNESSPSRSDYINASPIIEHDP (SEQ ID NO: 12), and SFYLKNVQTQETRTLTLQFHF (SEQ ID NO: 13).

25 (new). A method according to claim 18 or 19, in which the peptide or selected peptide is used in combination with a peptide or peptides having a sequence or sequences selected from the group consisting of

- a. IA-2 752-75 (SEQ ID NO : 12)
- b. IA-2 853-72 (SEQ ID NO : 13)
- c. IA-2 709-36 (SEQ ID NO : 11)
- d. IA-2 752-75 (SEQ ID NO : 12) and IA-2 853-72 (SEQ ID NO : 13)
- e. IA-2 709-36 (SEQ ID NO : 11) and IA-2 752-75 (SEQ ID NO : 12)
- f. IA-2 709-36 (SEQ ID NO : 11) and IA-2 853-72, (SEQ ID NO : 13) and

g. IA-2 709-36 (SEQ ID NO : 11) and IA-2 752-75 (SEQ ID NO :12) and IA-2 853-72 (SEQ ID NO : 13).

26 (new). A method of treatment or prevention of Type 1 diabetes according to claim 18 or 19, in which the peptide or combination of peptides is administered by parenteral or oral or topical routes, including intradermal, subcutaneous or intravenous injection, or nasally or orally or epicutaneously.

27 (new). A method according to claim 26, in which the peptide or each peptide in a combination of peptides is administered in an amount of up to 1mg or more per single dose.

28 (new). A method according to claim 27, in which the peptide or each peptide in a combination of peptides is administered in an amount of from 0.5 to 500 micrograms or more per single dose.

29 (new). A method according to claim 28, in which a single dose contains from 5 to 250 μg of the, or each, peptide.

30 (new). A method according to claim 18 or 19, in which the peptide or combination of peptides is administered in conjunction with a tolerance-promoting adjuvant or tolerance promoting cells.

31 (new). A method of monitoring the results of treatment according to claim 18 or 19, which comprises the following steps:-

- a. extracting the patient's peripheral blood mononuclear cells
- b. culturing these cells with any of the peptides or peptide combinations specified in claim 18 or 19,
- c. applying a cytokine ELISPOT analysis to the cultured cells in order to quantitate the cellular production of cytokines.

32 (new). A method according to claim 31, in which said cytokines are selected from the group consisting of interferon- γ and interleukin-10.

33 (new). A method according to claim 31, in which the patient's immunological tolerance to beta cells is demonstrated by the presence of an increased number of interleukin-10 producing cells and a reduced number of interferon- γ producing cells, compared to those present prior to treatment.

34 (new). A peptide having a sequence consisting essentially of a sequence selected from the group consisting of GGGPGAGSLQPLALEGSLQK (SEQ ID NO: 4), GSLQPLALEGSLQKRGIV (SEQ ID NO: 5), QPLALEGSLQKRGIVEQ (SEQ ID NO: 6) and GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10).

35 (new). The peptide having a sequence consisting essentially of GGGPGAGSLQPLALEGSLQK (SEQ ID NO: 4).

36 (new). The peptide having the sequence consisting essentially of
GSLQPLALEGSLQKRGIV (SEQ ID NO: 5).

37 (new). The peptide having the sequence consisting essentially of
QPLALEGSLQKRGIVEQ (SEQ ID NO: 6).

38 (new). The peptide having the sequence consisting essentially of
GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10).

39 (new). A combination of peptides comprising a first peptide having the
sequence QPLALEGSLQK (SEQ ID NO: 9), said peptide being optionally extended by
one or more aminoacids bordering said sequence in the consensus sequence
GGGPGAGSLQPLALEGSLQKRGIVEQ (SEQ ID NO: 10), said first peptide being
combined with one or more peptides having a sequence or sequences selected from
the group consisting of LAKEWQALCAYQAEPNTCATAQGEGNIK (SEQ ID NO: 11),
KLKVESSPSRSDYINASPIIEHDP (SEQ ID NO: 12), and SFYLKNVQTQETRTLQFHF
(SEQ ID NO: 13).

40 (new). A combination of peptides comprising a first peptide according to
claim 34, in combination with one or more peptides having a sequence or sequences
selected from LAKEWQALCAYQAEPNTCATAQGEGNIK (SEQ ID NO: 11).

KLKVESSPSRSDYINASPIIEHDP (SEQ ID NO: 12), and SFYLKNVQTQETRTLTLQFHF (SEQ ID NO: 13).

41 (new). A combination of peptides according to claim 40, comprising a first peptide according to claim 34 in combination with a peptide or peptides having a sequence or sequences selected from the group consisting of

- h. IA-2 752-75 (SEQ ID NO : 12)
- i. IA-2 853-72 (SEQ ID NO : 13)
- j. IA-2 709-36 (SEQ ID NO : 11)
- k. IA-2 752-75 (SEQ ID NO : 12) and IA-2 853-72 (SEQ ID NO : 13)
- l. IA-2 709-36 (SEQ ID NO : 11) and IA-2 752-75 (SEQ ID NO : 12)
- m. IA-2 709-36 (SEQ ID NO : 11) and IA-2 853-72, (SEQ ID NO : 13), and
- n. IA-2 709-36 (SEQ ID NO : 11) and IA-2 752-75 (SEQ ID NO : 12) and IA-2 853-72 (SEQ ID NO : 13).

42 (new). A pharmaceutical composition comprising a peptide according to claim 34, for the therapy of Type 1 diabetes.

43 (new). A pharmaceutical composition comprising a peptide combination according to claim 39 or 40, for the therapy of Type 1 diabetes.

44 (new). A pharmaceutical composition according to claim 42, in which the peptide or each peptide is conjugated or otherwise combined with a tolerance-promoting adjuvant or tolerance promoting cells.

45 (new). A pharmaceutical composition according to claim 43, in which the peptide or each peptide is conjugated or otherwise combined with a tolerance-promoting adjuvant or tolerance promoting cells.

46 (new). A diagnostic method or kit for diagnosis of, or determination of a predisposition to, Type 1 diabetes, comprising a peptide or peptide combination according to claim 34, 39 or 40.

47 (new). A diagnostic method or kit for diagnosis of, or determination of a predisposition to, Type 1 diabetes, comprising peptide combination according to claim 41.